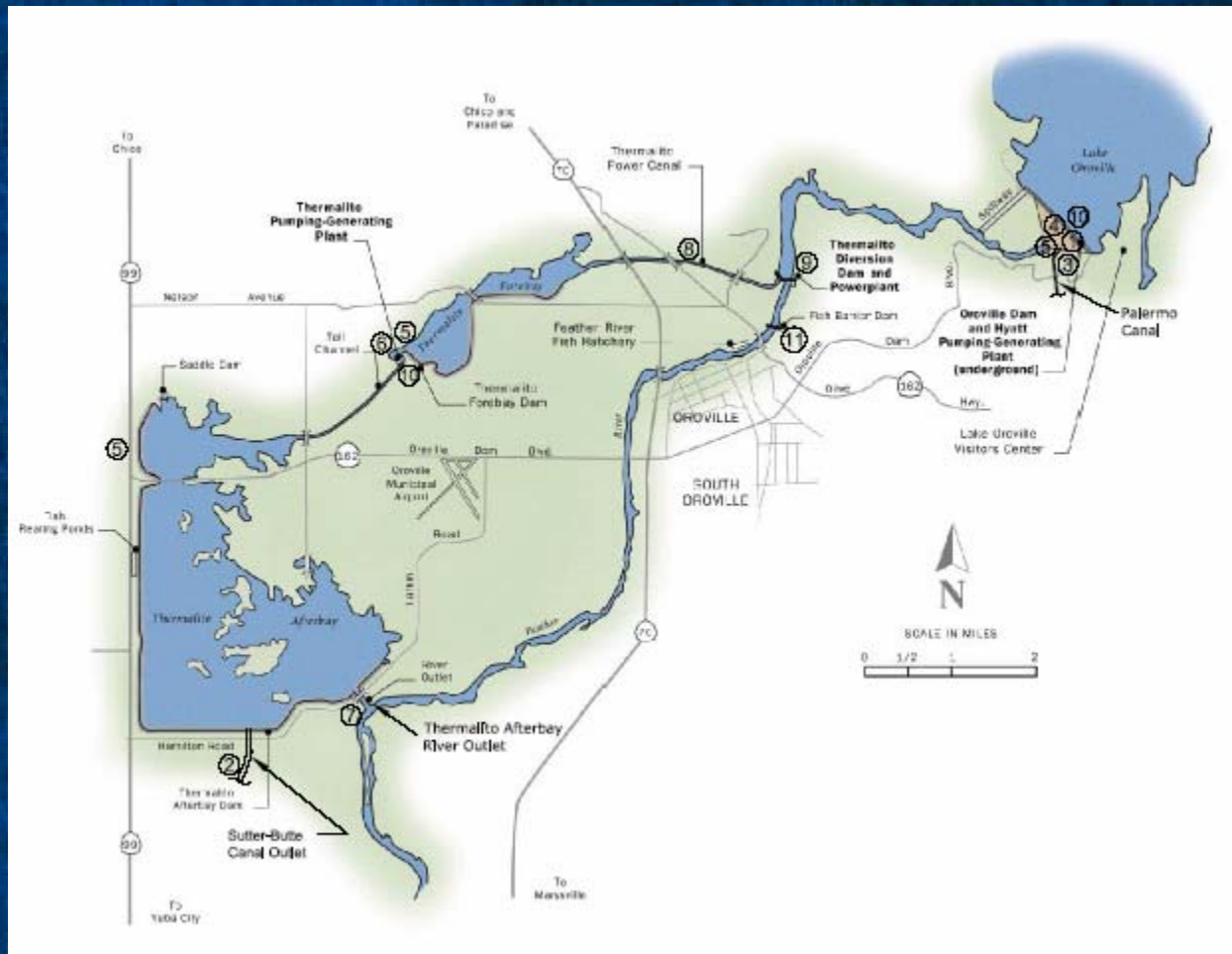




# **Report on Evaluation of Potential Generation Improvements (Study Plan E-3)**

**February 27, 2004**



# Potential Projects

1. Hyatt Pumping-Generating Plant Modernization
2. Sutter Butte Canal Outlet Small Hydro Plant
3. Palermo Canal Outlet Small Hydro Plant
4. Hyatt Pumping-Generating Plant Operations During Floods
5. Oroville-Thermalito Power Complex Phase II
6. Thermalito Pumping-Generating Plant Refurbishment
7. Thermalito Afterbay River Outlet Small Hydro Plant
8. Hydroelectric Power From Kinetic Energy of Waters Flowing in Thermalito Power Canal
9. Thermalito Diversion Dam Additional Power Plant
10. Increase the Spinning Reserve by Motoring the Units
11. Fish Barrier Dam Small Hydro Plant



# Hyatt Pumping-Generating Plant Modernization



Licensed MW/Avg. Energy (MWH):  
645 MW

Environmental Issues:  
None

Capital Costs:  
N/A

B/C Ratio:  
N/A

Note: Work is currently under way





# Sutter Butte Canal Outlet Small Hydro Plant



**Capacity (MW)/Avg. Energy (MWH):**  
**2.4/7,823**

**Environmental Issues:**  
**Minor**

**Capital Costs:**  
**Conventional: \$8,953,000**  
**Hydro Matrix: Not yet estimated**

**B/C Ratio:**  
**Conventional: 0.69**  
**Hydro Matrix: Not yet estimated**



# Palermo Canal Outlet Small Hydro Plant



**Capacity (MW)/Avg. Energy (MWH):**  
0.5/1,604

**Environmental Issues:**  
Minor

**Capital Costs:**  
\$2,906,000

**B/C Ratio:**  
0.45



# Hyatt Pumping-Generating Plant Operations During Floods



Licensed MW/Avg. Energy (MWH):  
645 MW

Environmental Issues:  
None

Capital Costs:  
Not estimated

B/C Ratio:  
N/A





# Oroville-Thermalito Power Complex Phase II



**Capacity (MW)/Avg. Energy (MWH):**  
1,045/180,000

**Environmental Issues:**  
Significant

**Capital Costs:**  
\$1,719,263,000

**B/C Ratio:**  
0.54





# Thermalito Pumping-Generating Plant Refurbishment



Licensed MW/Avg. Energy (MWH):  
114 MW

Environmental Issues:  
None

Capital Costs:  
Conventional  
Variable Speed

B/C Ratio:  
Not yet estimated



# Thermalito Afterbay River Outlet Small Hydro Plant



Capacity (MW)/Avg. Energy (MWH):  
2.16/9,051

Environmental Issues:  
Minor

Capital Costs:  
Hydro Matrix: \$6,534,000

B/C Ratio:  
1.10



# Hydroelectric Power From Kinetic Energy of Waters Flowing in Thermalito Power Canal



Capacity( MW)/Avg. Energy (MWH):  
N/A

Environmental Issues:  
Minor

Capital Costs:  
Not estimated

B/C Ratio:  
N/A





# Thermalito Diversion Dam Additional Power Plant



Capacity (MW)/Avg. Energy (MWH):  
5.0/7,554

Environmental Issues:  
Minor

Capital Costs:  
\$22,788,000

B/C Ratio:  
0.21



# Increase the Spinning Reserve by Motoring the Units



**Licensed MW:**

**Hyatt: 645 MW**

**Thermalito: 114 MW**

**Environmental Issues:**

**None**

**Capital Costs:**

**Not estimated**

**B/C Ratio:**

**N/A**

**Capacity and Energy is bid into CAISO**



# Fish Barrier Dam Small Hydro Plant



**Capacity (MW)/Avg. Energy (MWH):**  
**Studies In Progress**

**Environmental Issues:**  
**Minor**

**Capital Costs:**  
**Studies In Progress**

**B/C Ratio:**  
**Studies In Progress**





# Summary

- Status
- What's Next



State of California  
The Resources Agency  
Department of Water Resources

**E&O WORK GROUP REVIEW DRAFT**  
**REPORT ON EVALUATION OF POTENTIAL**  
**GENERATION IMPROVEMENTS**  
**(STUDY PLAN E-3)**

Oroville Facilities Relicensing  
FERC Project No. 2100



FEBRUARY 27, 2004

ARNOLD  
SCHWARZENEGGER  
Governor  
State of California

MIKE  
CHRISMAN  
Secretary for Resources  
The Resources Agency

LESTER SNOW  
Director  
Department of Water  
Resources